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## (54) An inflatable lifejacket

(57) In order to overcome the problem of fitting inflation means to each of two superimposed compartments of an inflatable lifejacket in an easy and reliable manner with the minimum of special components the upper and lower compartments (12, 14) are divided into two chambers (22, 24, 26, 28). A first chamber (22) of the upper compartment (12) being in communication with a second (28) chamber of the lower compartment (14) and a second chamber (24) of the upper compartment (12) being in communication with a first chamber (26) of the lower compartment (14) defining two independently inflatable buoyancy chambers, such that the inflation means (42, 44) for each buoyancy chamber may be provided on a topside (16) of the upper compartment of the lifejacket.

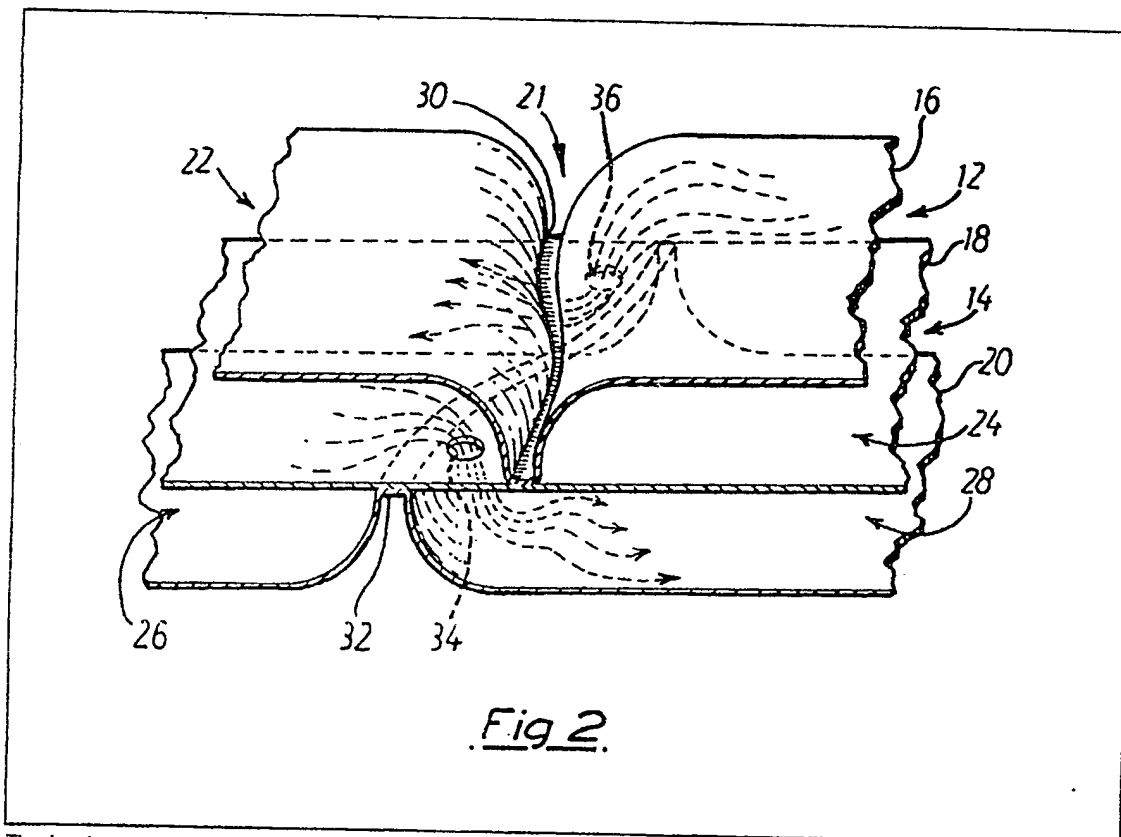


Fig 2.

The drawings originally filed were informal and the print here reproduced is taken from a later filed formal copy.

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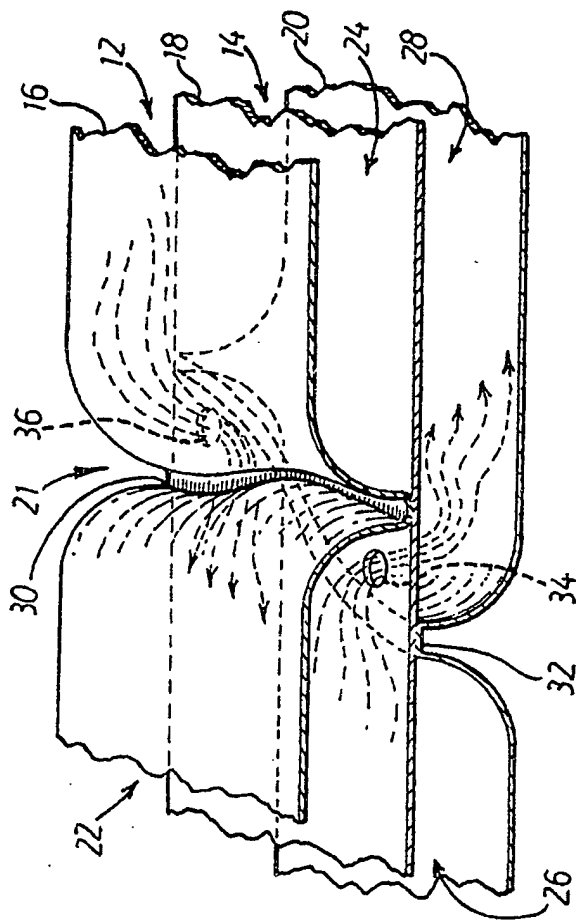


Fig. 2.

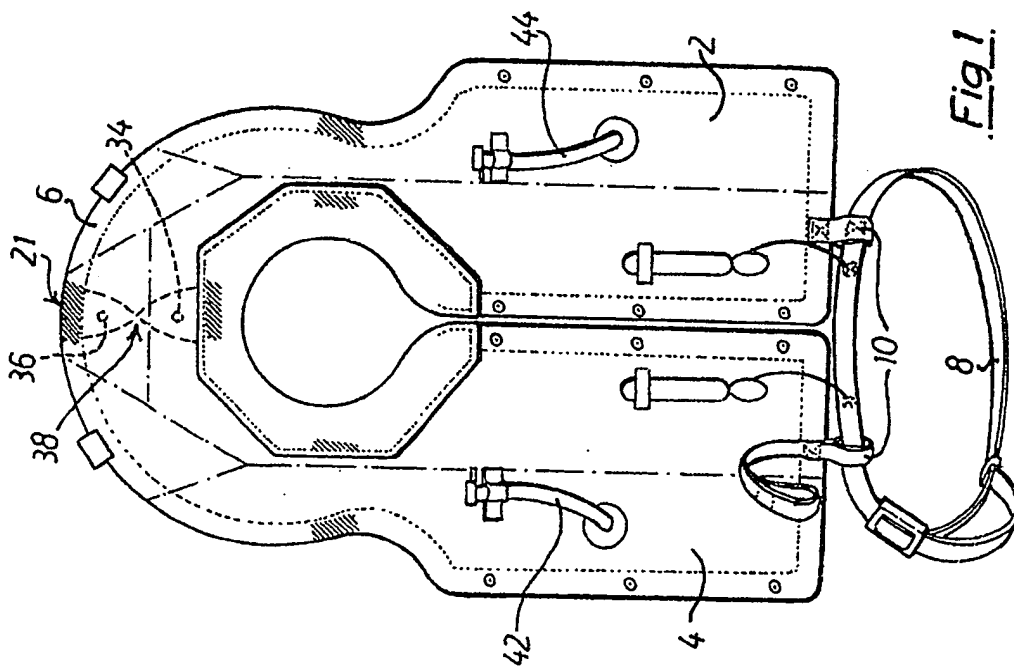


Fig. 1.

# SPECIFICATION

## Improvements in or relating to lifejackets

5 The present invention relates to lifejackets.

Inflatable lifejackets are normally of either a halter design, which requires the head of the wearer to be inserted through a central aperture in the jacket, or alternatively are of a twin lobed "horseshoe" design which the wearer dons like a waist coat.

10 A single compartment lifejacket of either of these two types would normally have means of oral inflation through a valve which is adjacent to the face within reach of the wearer's mouth, and of necessity on the uppermost side of the lifejacket. A cylinder of compressed gas may also be provided for inflating the jacket and this could be located anywhere on the lifejacket but for convenience should preferably be on the front within easy reach of the hand and if the lifejacket folds then preferably within the folds to avoid creating a snag hazard, but with the means of operation exposed.

A known design of twin compartment lifejacket has a second buoyancy compartment superimposed over the whole area of the single compartment lifejacket. Each buoyancy compartment is provided with its own means of inflation and careful attention must be paid to the means of inflating the underside compartment.

30 In one known design this has been achieved by using a longer oral inflation valve tube which enters the inner most face of the underside compartment and which is brought through the neck aperture. Another known arrangement provides channelling of the air from the valves positioned on the face of the lifejacket to the underside compartment.

In a known design it is the practice to have oral or both oral and gas inflation systems attached directly to the appropriate inflatable compartment, topside and underside. If then, the deflated lifejacket is folded for compact wear there will always be half of the inflation system on the outside of the folded lifejacket, presenting a potential hazard.

An object of the invention is to provide a twin compartment lifejacket which overcomes the above mentioned difficulties.

According to the present invention there is provided an inflatable lifejacket having superimposed upper and lower compartments, each of the upper and lower compartments being divided into at least first and second sections wherein the first and second sections of the upper compartment are connected respectively with the second and first sections of the lower compartment to form two independently inflatable buoyancy compartments.

The invention has the advantage that the oral inflation means for each buoyancy compartment can be disposed on the respective first and second sections of the upper compartment thus avoiding the problems associated with the known twin compartment lifejackets.

The upper and lower compartments may be connected in a particularly simple manner by arranging that the respective sections forming each buoyancy compartment overlap in the region of the

connection.

In a preferred embodiment the lifejacket has a topside fabric panel, a centre fabric panel and an underside fabric panel. The topside and underside panels are sealingly secured to the centre panel, by welding, vulcanisation or adhesion to divide each of the upper and lower compartments into the first and second sections. The welds separating the two compartments are not contiguous but they intersect such that the first and second sections of the first buoyancy compartment overlap as do the first and second sections of the second buoyancy compartment.

In the preferred embodiment the weld lines are sinuous although any shape of weld line may be used provided that the weld lines intersect.

In a preferred embodiment of the invention the deflated lifejacket is foldable so that the outer edge of the respective lobes overlie the respective inner edges and this has the advantage that all the inflation systems can be enclosed within the folded lifejacket.

The present invention will now be described further, by way of example only, with reference to the accompanying drawings, in which:-

Figure 1 illustrates a lifejacket in accordance with the invention, and

Figure 2 illustrates diagrammatically the connection of the buoyancy compartments of the lifejacket of Figure 1.

Referring to the drawings there is illustrated a twin lobed lifejacket which has two limbs (2,4) connected by an arcuate headrest portion (6) which defines inwardly thereof an opening for the neck of the wearer. The two limbs (2,4) of the lifejacket are secured by tabs (10) to a belt (8) which passes around the torso of the wearer.

The lifejacket has superimposed upper and lower compartments (12, 14) formed by three superimposed fabric panels, and a partition generally indicated as (21), disposed centrally in the headrest portion (6) divides the upper compartment (12) into first and second sections (22, 24) and the lower compartment (14) into first and second sections (26, 28).

The upper compartment (12) is defined between a topside fabric panel (16) and a centre fabric panel (18) and the lower compartment (14) is defined between the centre fabric panel (18) and an underside fabric panel (20).

The topside panel (16) is secured to the centre panel (18) along a weld line (30) so forming the first and second sections (22, 24). The underside panel (20) is secured to the centre panel (18) along a weld line (32) so defining the first and second sections (26, 28).

The weld lines (30) and (32) intersect at a point (38) such that the first and second sections (22, 24) of the upper compartment (12) overlap respectively with the second and first sections (28, 26) of the lower compartment (14). Two or more openings (34, 36) are disposed in the centre panel (18) between the respective weld lines (30, 32) such that the first section (22) of the upper compartment (12) is in communication with the second section (28) of the

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lower compartment defining a first buoyancy compartment and the first section (26) of the lower compartment is in communication with the second section (24) of the upper compartment defining a second buoyancy compartment at a transfer partition.

An oral inflation valve tube (42) is connected to the topside panel (16) of the first section (22) by means of which the first buoyancy compartment can be inflated.

A second oral inflation valve tube (44) is connected topside panel (16) of the second section (24) by means of which the second buoyancy compartment may be inflated.

Thus by providing inter-connection of an upper left hand compartment with a lower right hand compartment, and an upper right hand compartment with a lower left hand compartment, at the transfer partition, both oral inflation tubes can be placed on the topside panel.

As is illustrated in the drawings the partition dividing the upper and lower compartments is on the central axis of symmetry of the lifejacket. This is the preferred location, but the partition can be in any other convenient location provided that when only one buoyancy compartment is inflated the wearer is not forced onto one side or the other. This always is the case when the superimposed upper and lower compartments are of the same configuration.

The invention may be applied to a halter type lifejacket, in which case the partition dividing both the upper and lower compartments may be located centrally on the front or on the headrest portion of the lifejacket with a non-transfer partition located at the corresponding headrest or centre front.

Further applications are also possible by using the transfer partition on each side of the neck (as worn) or, to control the self righting of the wearer in the water, unequal buoyancy volumes in each limb will induce self righting in the direction of the greater displacement. This could be applied either by slightly delaying the transfer or by making the uppermost compartment of one limb of greater displacement.

The lifejacket may be folded to reduce the overall dimensions of the jacket when uninflated for example the outer edge of each lobe 2, 4 may be folded to over lie the inner edge of that lobe whereby the inflation means may be enclosed within the folds so avoiding any possible snag hazard. A pair of compressed gas cylinders may be provided for inflation of the respective buoyancy compartment, or one compartment may be gas inflated, and the other compartment being orally inflatable, and supplementary in case of damage to the gas inflated compartment.

#### CLAIMS (Filed 16 Dec. 1981)

1. An inflatable lifejacket having superimposed upper and lower compartments, each of the upper and lower compartments being divided into at least first and second chambers wherein the first and second chambers of the upper compartment are in communication respectively with the second and first chambers of the lower compartment to form

two independently inflatable buoyancy compartments.

2. A lifejacket as claimed in claim 1 in which the upper compartment is defined between a topside panel and a centre panel and the lower compartment is defined between the centre panel and an underside panel.

3. A lifejacket as claimed in claim 2 in which the topside panel is sealingly secured to the centre panel along a line contact, and the underside panel is sealingly secured to the centre panel along another line contact.

4. A lifejacket as claimed in claim 3 in which said line contact serves to divide the upper compartment into the first and second chambers and said another line contact serves to divide the lower compartment into the second and first chambers.

5. A lifejacket as claimed in claim 3 or 4 in which said line contact and said another line contact intersect to form a transfer connection at which a portion of the first upper compartment chamber overlaps with a portion of the second lower compartment chamber and a portion of the second upper compartment chamber overlaps with a portion of the first lower compartment chamber.

6. A lifejacket as claimed in claim 5 in which said intersecting lines are both s-shaped.

7. A lifejacket as claimed in claims 5 or 6 in which the transfer connection or partition is disposed on the central axis of symmetry of the lifejacket.

8. A lifejacket as claimed in any of claims 2 to 7 in which communication between the first and second chambers of each buoyancy compartment is by way of a respective orifice formed in the centre panel.

9. A lifejacket as claimed in any preceding claim in which the boundaries of the upper and lower compartments are contiguous and each of the respective first and second chambers are approximately equal in capacity.

10. A lifejacket as claimed in any of claims 2 to 9 in which the topside panel of each of the first and second chamber 1 carries respective oral inflation means for the two independent buoyancy compartments.

11. A lifejacket as claimed in any preceding claim in which a or a respective compressed gas cylinder is provided for inflating one and/or both buoyancy compartments.

12. A lifejacket as claimed in any preceding claim in which a throttle is provided between the first and second chambers to provide a self-righting effect on inflation.

13. A lifejacket as claimed in any of claims 5 to 12 in which the jacket is of the twin lobed type with the transfer partition located in a headrest portion connecting the left and right lobes.

14. A lifejacket as claimed in any of claims 5 to 12 in which the jacket is of the halter type with the transfer partition located centrally in the front or in the headrest portion and with a non-transfer partition located in the other of the centre front or headrest positions.

15. A lifejacket as claimed in any of claims 5 to 14 in which the said intersecting contact lines are formed by welding together the adjacent topside

and centre panels and the adjacent underside and centre panels.

16. An inflatable lifejacket constructed and arranged and adapted to operate substantially as  
5 hereinbefore described with reference to and as illustrated in the accompanying drawings.

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B63C 9/125

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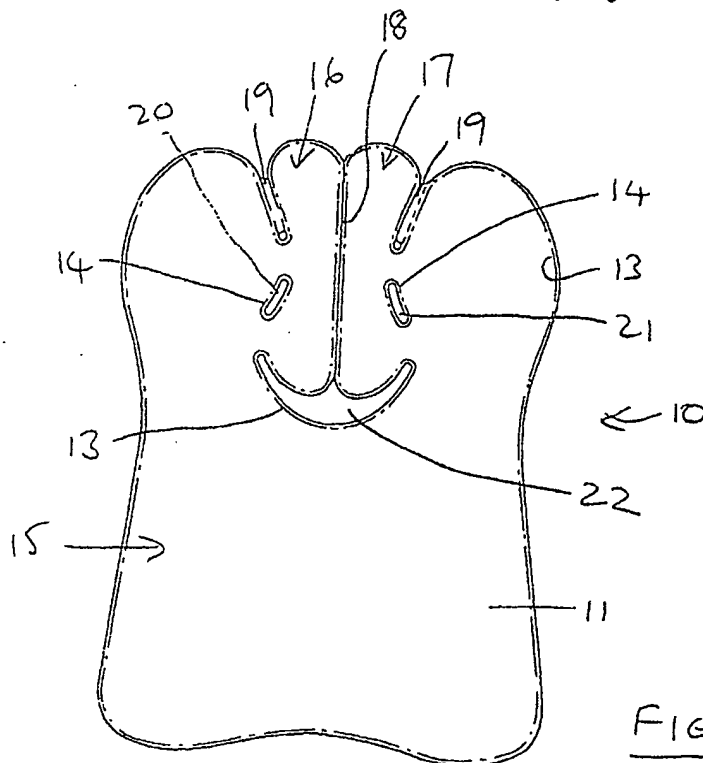
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(58) Field of search  
UK CL (Edition L) B7A AAJ  
INT CL<sup>6</sup> B63C  
Online databases: WPI

(54) Life jacket

(57) A life jacket 10 made from front and rear sheets 11, 12 of flexible, waterproof material to form a single inflation chamber has neck chambers 16, 17 defined by suitable seams and tabs 19 and are joined thereby moving the neck chambers 16, 17 out of the general plane of the main chamber 15. This also opens up the head opening 22, but when the life jacket 10 is inflated, the neck chambers 16, 17 reduce the size of the head opening 22.



FIGURE

At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

The claims were filed later than the filing date within the period prescribed by Rule 25(1) of the Patents Rules 1990.

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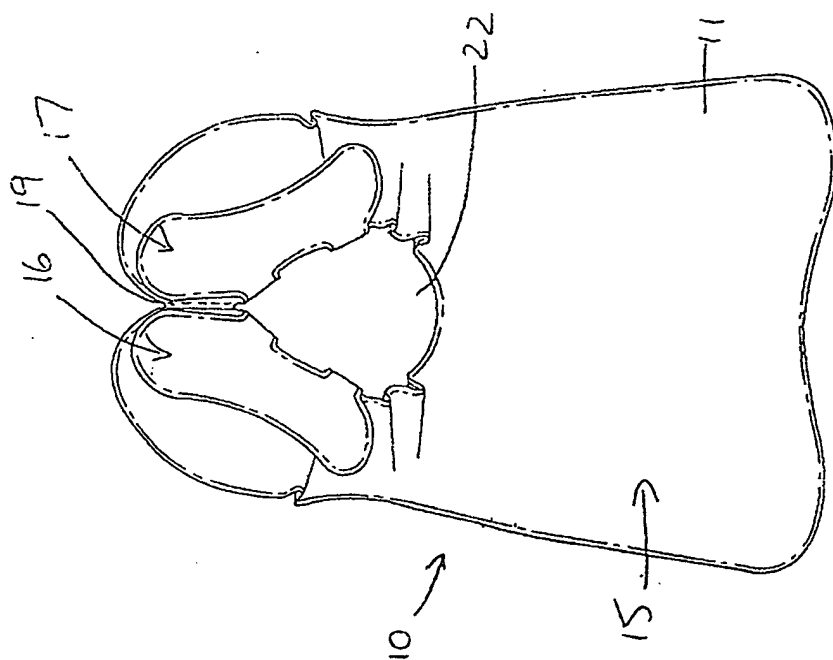


FIGURE 2

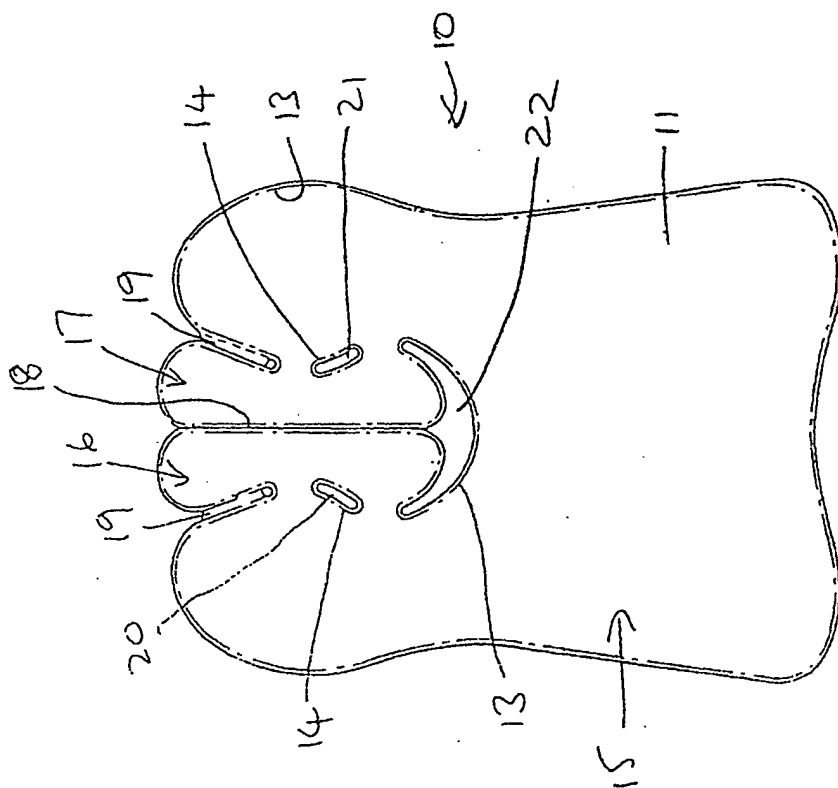


FIGURE 1

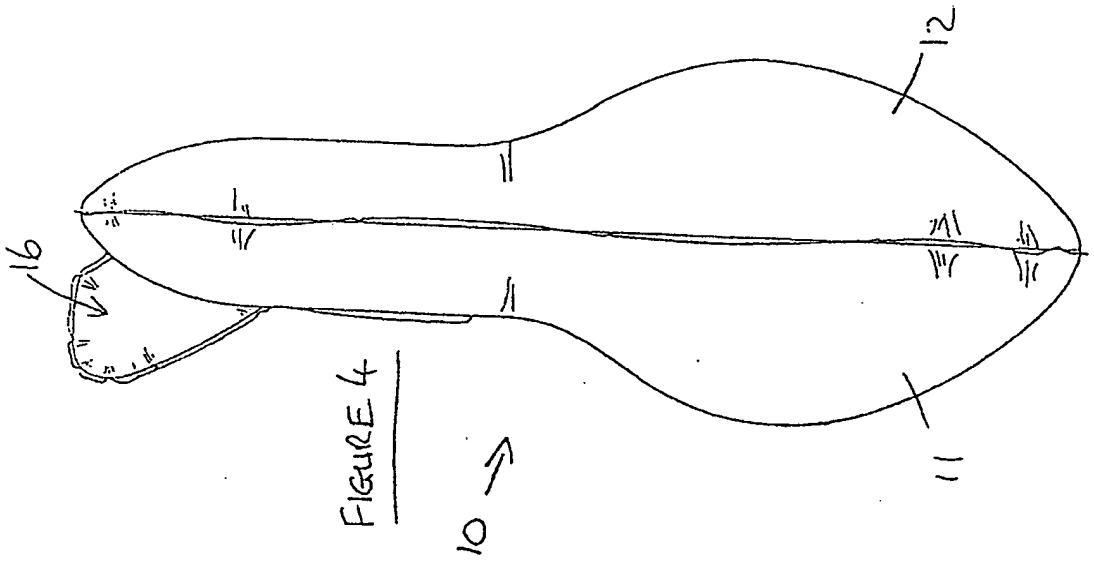
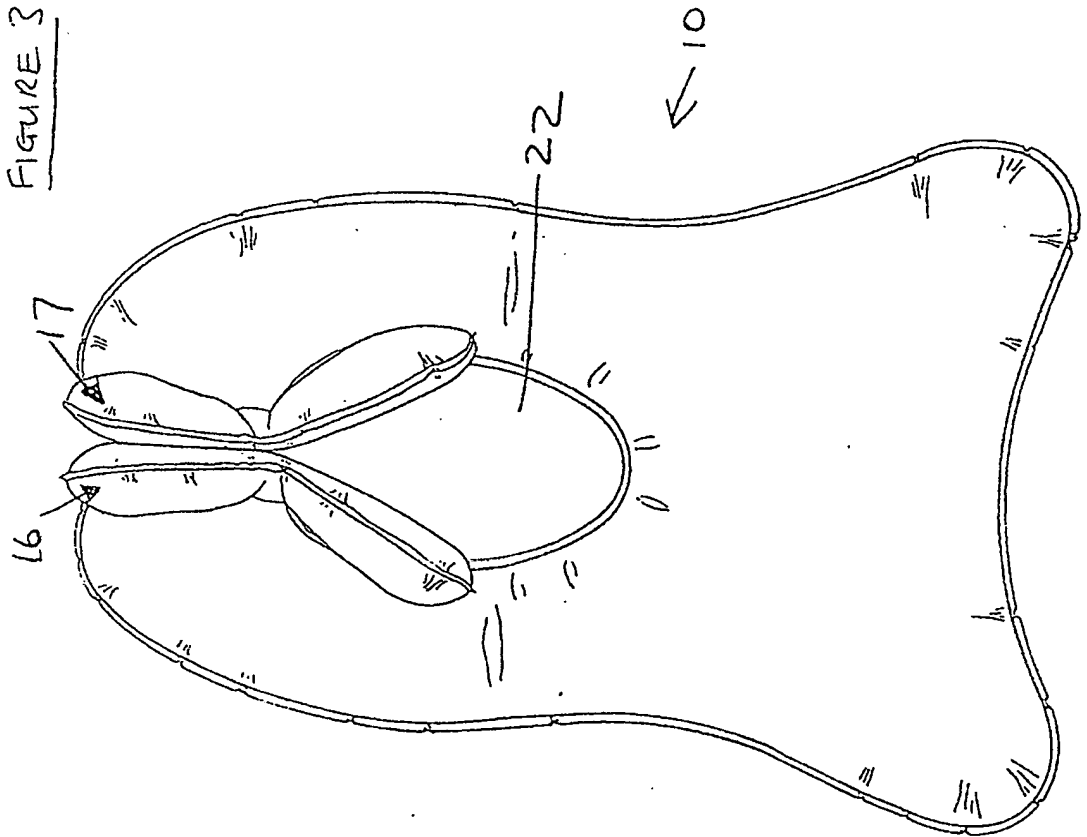


FIGURE 3





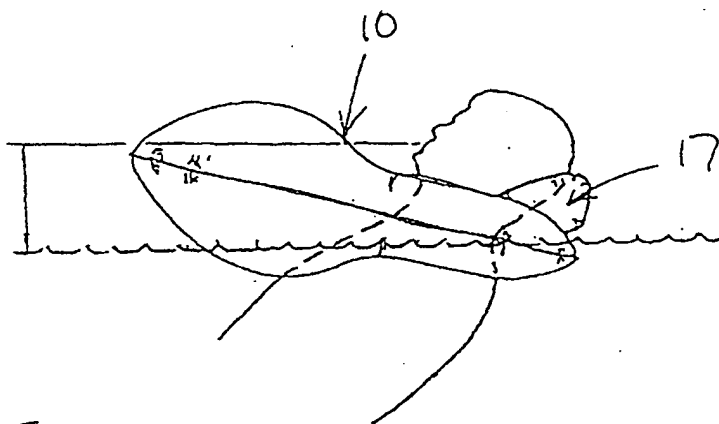


FIGURE 6

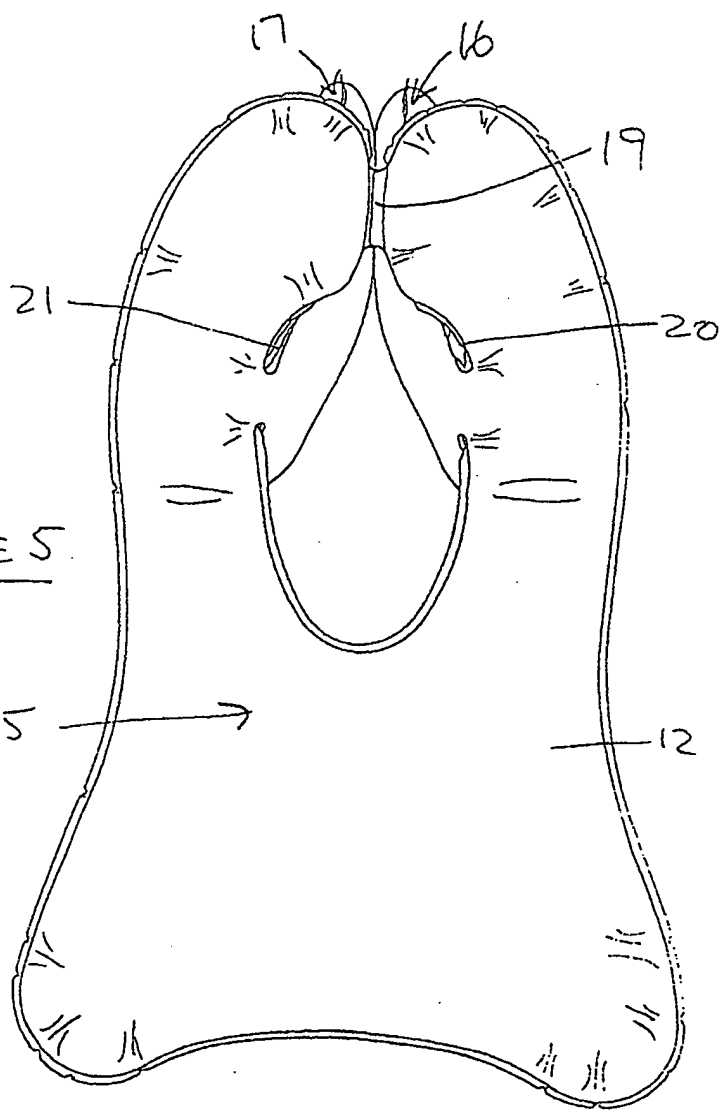


FIGURE 5

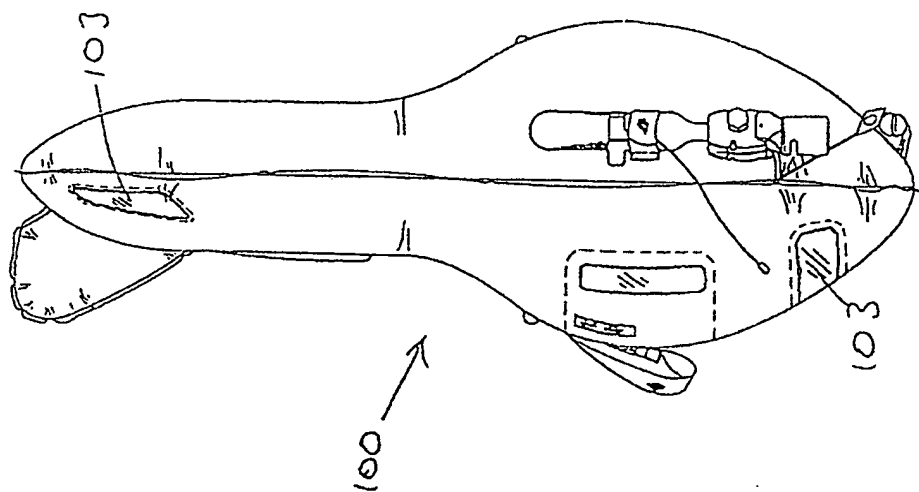


FIGURE 8

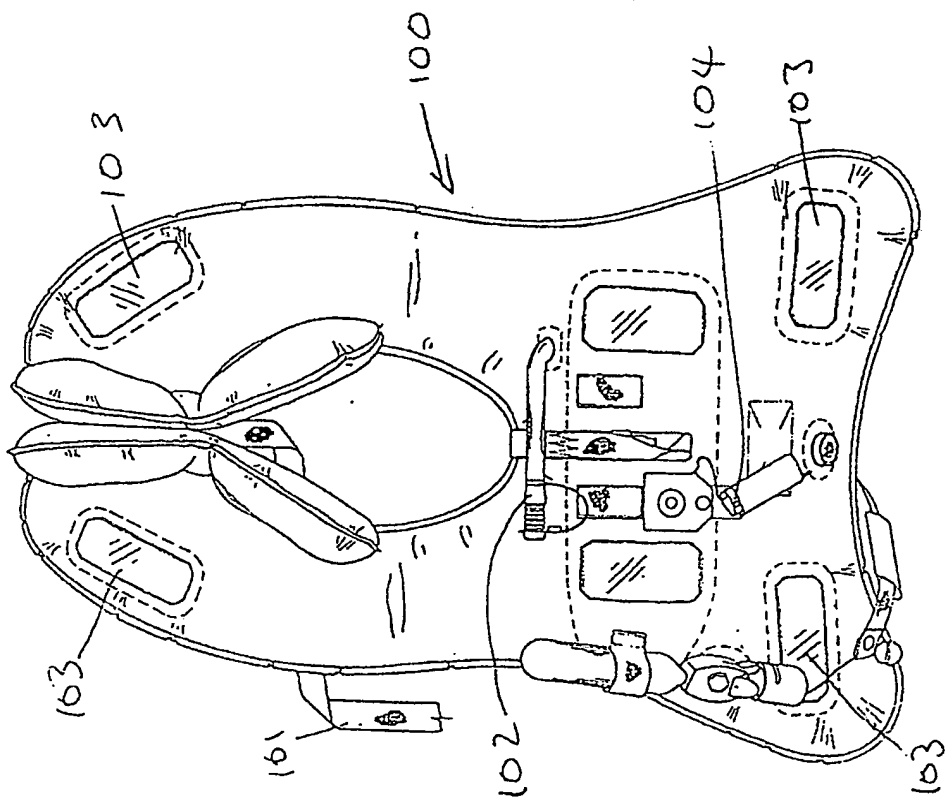


FIGURE 7

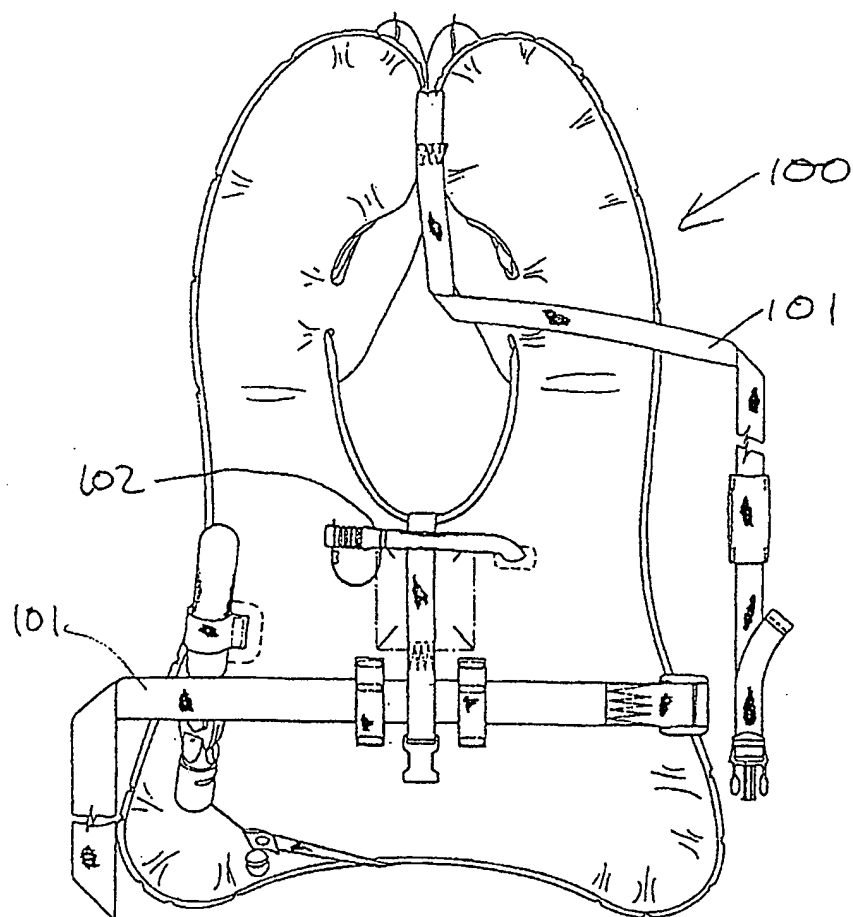


FIGURE 9